2.5.2 Yield and yield attributing parameters

The number of effective tillers was recorded at crop maturity by counting all panicle-bearing tillers within a randomly selected 1 m² area of each net plot. The number was expressed as effective tillers per square meter. The average length of ten panicles from the base of rachis to the tip of panicle was measured and expressed as length of panicle in cm.

The number of grains per panicle was counted manually from the ten panicles in each plot and the average number of filled grain from ten panicles was taken as the number of filled grain per panicle. At the same time, the number of unfilled grains per panicle was also counted to find out the sterility percentage of each treatment. Thousand grains were counted from randomly selected grain yield of net plot and weighted.

The sterility percentage was taken from the total filled grains and unfilled grains of each panicle and the calculation is done by using the formula as follows:

$$\text{Sterility percentage} = \frac{\text{Number of unfilled grains per panicle}}{\text{Total number of grains per panicle}} \times 100$$

2.6 Weed index

It was calculated by using the formula:

$$WI = \frac{X-Y}{X} \times 100$$

Where, X = Yield from minimum weed competition plot; Y = Yield from the treatment for which WI is to be worked out.

2.7 Statistical analysis

Data for each sampling date or interval were analyzed separately using a randomized complete block design (RCBD) model, as follows:

$$Y_{ij}=\mu+\tau_i+\beta_j+\varepsilon_{ij}$$

Where, Y_{ij} represents the observed value for treatment i in block j, μ is the overall mean, τ_i is the effect of treatment i, β_j is the effect of block j, and ε_{ij} is the random experimental error.

Treatment was considered a fixed effect and block was included as a blocking factor. The plot was the experimental unit and there were three blocks (n = 3). Plant height and dry matter were analyzed separately at each sampling date, and CGR was analyzed separately for each sampling interval; no Treatment x Time model was fitted. Analyses were performed in R version 4.3.1 using agricolae package. When the treatment effect was significant at $p \leq 0.05$, means were separated using Duncan's multiple range test (DMRT) at the 5% level.

3 Results and Analysis

3.1 Plant height (cm)

Plant height increased from 30 DAS to harvest in all treatments. Treatment differences were significant at each measurement date. Bispyribac sodium + 2,4-D had the numerically greatest height from 30 to 90 DAS, while the weed-free and oxadiargyl treatments were in the same statistical group at most of these dates (Table 2). At harvest, the weed-free and bispyribac sodium + 2,4-D treatments had the greatest values (93.4 cm), and both were statistically grouped with pretilachlor, bispyribac sodium, oxadiargyl, and pretilachlor + 2,4-D. The weedy check had the lowest harvest height (87.4 cm).